Substitute Disclosure Form (PTO-1449)

Substitute Form PTO-1449	U.S. Department of Commerce Patent and Trademark Office	Attorney's Docket No. 17023-030001	Application No. 10/715,876	_
ormation Dis	closure Statement oplicant	Applicant Jerrold P. Weiss et al.		
(Use several st	eets if necessary)	Filing Date November 17, 2003	Group Art Unit	

	U.S. Patent Documents						
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
M	AA	3,561,444	02/09/71	Boucher			
1	AB	3,703,173	11/21/72	Dixon			
	AC	4,624,251	11/25/86	Miller			
	AD	4,635,627	01/13/87	Gam	_		
Hh-	AE	4,962,091	10/09/90	Eppstein et al.			

l	Foreign Patent Documents or Published Foreign Patent Applications							
Examiner	Desig.	Document	Publication	Country or			Trans	lation
Initial	ID	Number	Date	Patent Office	Class	Subclass	Yes	No
	AF	WO 94/07529	04/14/94	PCT				
JA-	AG	WO 97/19688	06/05/97	PCT				

	Other D	ocuments (include Author, Title, Date, and Place of Publication)				
Examiner	Desig.					
Initial ID		Document				
#	AH	breu et al., "TLR4 and MD-2 Expression Is Regulated by Immune-mediated Signals in Human stestinal Epithelial Cells," J. Biol. Chem., 2002, 277(23):20431-20437				
7	AI	Abreu et al., "Decreased Expression of Toll-Like Receptor-4 and MD-2 Correlates with Intestinal Epithelial Cell Protection Against Dysregulated Proinflammatory Gene Expression in Response to Bacterial Lipopolysaccharide," J. Immunol., 2001, 167:1609-1617				
·	AJ	Akashi et al., "Lipopolysaccharide Interaction with Cell Surface Toll-like Receptor 4-MD-2: Higher Affinity than That with MD-2 or CD14," J. Exp. Med., 2003, 198(7):1035-1042				
	AK	Akashi et al., "Cutting Edge: Cell Surface Expression and Lipopolysaccharide Signaling Via the Toll-Like Receptor 4-MD-2 Complex on Mouse Peritoneal Macrophages," J. Immunol., 2000, 164:3471-3475				
	AL	Altschul et al., "Basic Local Alignment Search Tool," J. Mol. Biol., 1990, 215:403-410				
	AM	Altschul et al., "Gapped BLAST and PSI-BLAST: a new generation of protein database search programs," Nucl. Acids Res., 1997, 25(17):3389-3402				
	AN	Anderson et al., "A simple method for the rapid generation of recombinant adenovirus vectors," Gene Ther., 2000, 7:1034-1038				
	AO	Anderson, "Toll signaling pathways in the innate immune response," <u>Curr. Opin. Immunol.</u> , 2000, 12:13-19				
	AP	Arbour et al., "TLR4 mutations are associated with endotoxin hyporesponsiveness in humans," Nat. Genet., 2000, 25:187-191				
	AQ	Bacchi et al., "Polyamine metabolism in the Microsporidia," Biochemical Society Transactions, 2003, 31(2):420-423				
M	AR	Bals et a), "Human \(\mathcal{B}\)-Defensin 2 Is a Salt-sensitive Peptide Antibiotic Expressed in Human Lung," J. Clin/Invest., 1998, 102(5):874-880				

Examiner Signature	Date Considered 07/05
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Substitute Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Attorney's Docket No. 17023-030001	Application No. 10/715,876	
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	Other Documents (include Author, Title, Date, and Place of Publication)						
Examiner Initial	Desig. ID	Document					
	AS	Bandi et al., "Nontypeable <i>Haemophilus influenzae</i> in the Lower Respiratory Tract of Patients with Chronic Bronchitis," Am. J. Respir. Crit. Care Med., 2001, 164:2114-2119					
	AT	Becker et al., "CD14-dependent Lipopolysaccharide-induced β-Defensin-2 Expression in Human Tracheobronchial Epithelium," J. Biol. Chem., 2000, 275(38):29731-27936					
	AU	Beutler and Poltorak, "Sepsis and evolution of the innate immune response," <u>Crit. Care Med.</u> , 2001, 29(7)(Suppl.):S2-S7					
	AV.	Beutler and Rietschel, "Innate immune sensing and its roots: the story of endotoxin," <u>Nat. Rev. Immunol.</u> , 2003, 3:169-176					
	AW	Bustin "Absolute quantification of mRNA using real-time reverse transcription polymerase chain reaction assays," J. Mol. Endrocrinol., 2000, 25:169-193					
	AX	Corpet, "Multiple sequence alignment with hierarchical clustering," <u>Nucl. Acids Res.</u> , 1988, 16(22):10881-10890					
	AY	Correia et al., "Lipopolysaccharide Is in Close Proximity to Each of the Proteins in Its Membrane Receptor Complex," J. Biol. Chem., 2001, 276(24):21129-21135					
	.AZ	Denning et al., "Pseudomonas Pyocyanin Increases Interleukin-8 Expression by Human Airway Epithelial Cells," Infect. Immun., 1998, 66(12):5777-5784					
	AAA	Douwes et al., "Biological agents – recognition," Modern Industrial Hygiene, Vol. 2, 2003, J.L. Perkins (ed.), ACGIH, Cincinnati, pp. 219-292					
	ABB	Frick et al., "Haemophilus influenzae Stimulates ICAM-1 Expression on Respiratory Epithelial Cells," J. Immunol., 2000, 164:4185-4196					
	ACC	Ganz, "Antimicrobial polypeptides in host defense of the respiratory tract," <u>J. Clin. Invest.</u> , 2002, 109:693-697					
	ADD	García et al., "Human \(\textit{B}\)-defensin 4: a novel inducible peptide with a specific salt-sensitive spectrum of antimicrobial activity," \(\textit{FASEB J.} \), 2001, 15:1819-1821					
	AEE	Giardina et al., "Construction of Acetate Auxotrophs of Neisseria meningitides to Study Host- Meningococcal Endotoxin Interactions," J. Biol. Chem., 2001, 276(8):5883-5891					
	AFF	Gioannini et al., "Isolation of an endotoxin-MD-2 complex that produces Toll-like receptor 4-dependent cell activation at picomolar concentrations," <u>Proc. Natl. Acad. Sci. USA</u> , 2004, 101(12):4186-4191					
	AGG	Gioannini et al., "An Essential Role for Albumin in the Interaction of Endotoxin with Lipopolysaccharide-binding Protein and sCD14 and Resultant Cell Activation," J. Biol. Chem., 2002, 277(49):47818-47825					
	АНН	Gioannini et al., "Regulation of interactions with endotoxin with host cells," <u>J. Endotoxin Res.</u> , 2003, 9(6):401-408					
	AII	Gottar et al., "The <i>Drosophila</i> immune response against Gram-negative bacteria is mediated by a peptidoglycan recognition protein," Nature, 2002, 416:640-644					
	AJJ	Hailman et al., "Lipopolysaccharide (LPS)-binding Protein Accelerates the Binding of LPS to CD14," J. Exp. Med., 1994, 179:269-277					
	AKK	Harder et al., "Mucoid <i>Pseudomonas aeruginosa</i> , TNF-α, and IL-1β, but Not IL-6, Induce Human β-Defensin-2 in Respiratory Epithelia," <u>Am. J. Respir. Cell Mol. Biol.</u> , 2000, 22:714-721					
	ALL	Harder et al., "Isolation and Characterization of Human \(\beta\)-Defensin-3, a Novel Human Inducible Peptide Antibiotic," \(\beta\). Biol. Chem., 2001, 276(8):5707-5713					
XXX	AMM	Harder et al., "A peptide antibiotic from human skin," Nature, 1997, 387:861					

	ALL	Peptide Antibiotic," <u>J. Biol. Chem.</u> , 2001, 276(8):5707-5713				
X	AMM Harder et al., "A peptide antibiotic from human skin," Nature, 1997, 387:861					
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			Substitute Disclosure Form (PTO-1449)			

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Information Disclosure Statement by Applicant		Applicant Jerrold P. Weiss et al.	
(Use several s	heets if necessary)	Filing Date November 17, 2003	Group Art Unit 1654

	Other D	ocuments (include Author, Title, Date, and Place of Publication)						
Examiner	Desig.							
Initial	ID	Document Higgins and Sharp, "Fast and sensitive multiple sequence alignments on a microcomputer,"						
AM.	ANN	<u>CABIOS</u> , 1989, 5(2):151-153						
	AOO	Higgins and Sharp, "CLUSTAL: a package for performing multiple sequence alignment on a microcomputer," Gene, 1988, 73:237-244						
	APP	loffman et al., "Phylogenetic Perspectives in Innate Immunity," <u>Science</u> , 1999, 284:1313-1318						
	AQQ	Huang et al., "Parallelization of a local similarity algorithm," <u>CABIOS</u> , 1992, 8(2):155-165						
	ARR	Inzana et al., "Phase Variation and Conservation of Lipooligosaccharide Epitopes in <i>Haemophilus somnus</i> ," Infect. Immun., 1997, 65(11):4675-4681						
	ASS	Iovine et al., "The Carboxyl-terminal Domain of Closely Related Endotoxin-binding Proteins Determines the Target of Protein-Lipopolysaccharide Complexes," J. Biol. Chem., 2002, 277(10):7970-7978						
	ATT	Janeway Jr. and Medzhitov, "Innate Immune Recognition," Annu. Rev. Immunol., 2002, 20:197-216						
	AUU	Jia et al., "Discovery of new human \(\beta\)-defensins using a genomics-based approach," \(\overline{\text{Gene}}\), 2001, 263:211-218						
	AVV	Jia et al., "Endotoxin responsiveness of human airway epithelia is limited by low expression of MD-2," Am. J. Physiol. Lung Cell Mol. Physiol., 2004, 287:L428-L437						
	AWW	Jiang et al., "Cutting Edge: Lipopolysaccharide Induces Physical Proximity Between CD14 and Toll-Like Receptor 4 (TLR4) Prior to Nuclear Translocation of NF-κΒ ¹ ," J. Immunol., 2000, 165:3541-3544						
	AXX	Karlin and Altschul, "Methods for assessing the statistical significance of molecular sequence features by using general scoring schemes," Proc. Natl. Acad. Sci. USA, 1990, 87:2264-2268						
	AYY	Karlin and Altschul, "Applications and statistics for multiple high-scoring segments in molecular sequences," Proc. Natl. Acad. Sci. USA, 1993, 90:5873-5877						
	AZZ	Karp et al., "An In Vitro Model of Differentiated Human Airway Epithelia," Meth. Mol. Biol., 2002, 188:115-137						
	AAAA	Kawasaki et al., "Involvement of TLR4/MD-2 complex in species-specific lipopolysaccharide- mimetic signal transduction by Taxol," J. Endotoxin Res., 2001, 7(3):232-236						
	ABBB	Kawasaki et al., "Identification of Mouse MD-2 Residues Important for Forming the Cell Surface TLR4-MD-2 Complex Recognized by Anti-TLR4-MD-2 Antibodies, and for Conferring LPS and Taxol Responsiveness on Mouse TLR4 by Alanine-Scanning Mutagenesis," J. Immunol., 2003, 170:413-420						
	ACCC	Lamping et al., "LPS-binding Protein Protects Mice from Septic Shock Caused by LPS or Gramnegative Bacteria," J. Clin. Invest., 1998, 101(10):2065-2071						
	ADDD	Latz et al., "Lipopolysaccharide Rapidly Traffics to and from the Golgi Apparatus with the Toll-like Receptor 4-MD-2-CD14 Complex in a Process That Is Distinct from the Initiation of Signal Transduction," J. Biol. Chem., 2002, 277(49):47834-47843						
	AEEE	Lehninger, "The amino acid building blocks of proteins," Biochemistry, 1975, 2 nd ed., pp. 73-75						
	AFFF	Lemaitre et al., "The Dorsoventral Regulatory gene Cassette spätzle/Toll/Cactus Controls the Potent Antifungal Response in Drosophila Adults," Cell, 1996, 86:973-983						
	AGGG	Lerman et al., "Nasopharyngeal Carriage of Antibiotic-Resistant Haemophilus influenzae in Healthy Children," Pediatrics, 1979, 64(3):287-291						

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(Other Documents (include Author, Title, Date, and Place of Publication)		
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Initial	ID	Liu et al., "Structure and mapping of the human \(\text{B-defensin HBD-2 gene and its expression at sites}\)	
JA-	АННН	of inflammation." Gene. 1998. 222:237-244	
77	AIII	Malley et al., "Recognition of pneumolysin by Toll-like receptor 4 confers resistance to pneumococcal infection," Proc. Natl. Acad. Sci. USA, 2003, 100(4):1966-1971	
	AJJJ	Mathews et al., "Production of B-Defensin Antimicrobial Peptides by the Oral Mucosa and Salivary Glands," Infect. Immun. 1999, 67(6):2740-2745	
	AKKK	McCray, Jr. and Bentley, "Human Airway Epithelia Express a β-defensin," Am. J. Respir. Cell Mol.	
	ALLL	McCray, Jr. et al., "Alveolar Macrophages Inhibit Retrovirus-Mediated Gene Transfer to Airway Epithelia," Hum. Gene Ther., 1997, 8:1087-1093	
	AMMM	McNamara et al., "Ocular Surface Epithelia Express mRNA for Human Beta Defesin-2," Exp. Eye Res., 1999, 69:483-490	
	ANNN	Means et al., "The biology of Toll-like receptors," Cytokine Growth Factor Rev., 2000, 11:219-232	
	. A000	Medzhitov and Janeway, Jr., "An ancient system of host defense," Curr. Opin. Immunol., 1998, 10:12-15	
	APPP	Medzhitov and Janeway, Jr., "Innate immune recognition: mechanisms and pathways," Immunol.	
	AQQQ	Medzhitov et al., "A human homologue of the <i>Drosophila</i> Toll protein signals activation of adaptive	
	ARRR	Meinkoth and Wahl, "Hybridization of Nucleic Acids Immobilized on Solid Supports," Anal.	
	ASSS	Miyake, "Innate recognition of lipopolysaccharide by CD14 and toll-like receptor 4-MD-2: unique	
	ATTT	Mueller-Anneling et al., "Ambient Endotoxin Concentrations in PM ₁₀ from Southern California,"	
	AUUU	Mullen et al., "The role of disulfide bonds in the assembly and function of MD-2," Proc. Natl.	
	AVVV	Munford et al., "Biosynthetic radiolabeling of bacterial lipopolysaccharide to high specific activity,"	
	AWWW	Muroi et al., "MD-2, a Novel Accessory Molecule, Is Involved in Species-Specific Actions of	
	AXXX	Muroi et al., "Regions of the Mouse CD14 Molecule Required for Toll-like Receptor 2- and 4-mediated Activation of NF-KB," J. Biol. Chem., 2002, 277(44):42372-42379	
	AYYY	Myers and Miller, "Optimal alignments in linear space," CABIOS, 1988, 4(1):11-17	
	AZZZ		
	AAAA	Needleman and Wunsch, "A General Method Applicable to the Search for Similarities in the Amino	
JA -	ABBBI	Newman "Therapeutic aerosols." Aerosols and the Lung, 1984, Clarke and Pavia (eds.), pp. 197-	
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	Other Documents (include Author, Title, Date, and Place of Publication)		
Examiner			
Initial	ID	Document	
	ACCCC	Ohnishi et al., "N-Linked Glycosylations at Asn ²⁶ and Asn ¹¹⁴ of Human MD-2 Are Required for Toll-Like Receptor 4-Mediated Activation of NF-kB by Lipopolysaccharide," J. Immunol., 2001, 167:3354-3359	
	ADDDD	O'Neil et al., "Expression and Regulation of the Human \(\beta\)-Defensins hBD-1 and hBD-2 in Intestinal Epithelium," \(\beta\). Immunol., 1999, 163:6718-6724	
	AEEEE	Pearson and Lipman, "Improved tools for biological sequence comparison," Proc. Natl. Acad. Sci. USA, 1988, 85:2444-2448	
	AFFFF	Pearson et al., "Using the FASTA Program to Search Protein and DNA Sequence Databases," Meth. Mol. Biol., 1994, 24:307-331	
	AGGGG	Re and Strominger, "Monomeric Recombinant MD-2 Binds Toll-like Receptor 4 Tightly and Confers Lipopolysaccharide Responsiveness," J. Biol. Chem., 2002, 277(26):23427-23432	
	АНННН	Re and Strominger, "Separate Functional Domains of Human MD-2 Mediate Toll-Like Receptor 4-Binding and Lipopolysaccharide Responsiveness," J. Immunol., 2003, 171:5272-5276	
	AIIII	Reynolds, "Integrated Host Defense Against Infections," The Lung: Scientific Foundations, 1997, Crystal et al. (eds.), Raven Press, Ltd., New York, NY, pp. 2353-2365	
	AJJJJ	Schröder and Harder, "Human beta-defensin-2," Int. J. Biochem. Cell Biol., 1999, 31:645-651	
	AKKKK	Schromm et al., "Molecular Genetic Analysis of an Endotoxin Nonresponder Mutant Cell Line: A Point Mutation in a Conserved Region of MD-2 Abolishes Endotoxin-induced Signaling," J. Exp. Med., 2001, 194(1):79-88	
	ALLLL		
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	ANNNN	1 strategy, Proc. Nati. Acad. Sci. USA, 2002, 99(4).2129-2133	
	A0000	Shimazu et al., "MD-2, a Molecule that Confers Lipopolysaccharide Responsiveness on Toll-like Receptor 4," J. Exp. Med., 1999, 189(11):1777-1782	
	APPPP	Singh et al., "Production of β-defensins by human airway epithelia," Proc. Natl. Acad. Sci. USA, 1998, 95:14961-14966	
	AQQQQ	Smith et al., "Endobronchial Infection in Cystic Fibrosis," Acta Paediatr. Scand. Suppl., 1989, 363:31-36	
	ARRRR		
	ASSSS	Stryer, "Conformation and Dynamics," <u>Biochemistry</u> , 2 nd edition, W.H.Freeman and Co., San Francisco, 1981, pp. 14-15	
	ATTTT		
	AUUUU	LPS-binding Protein, J. Biol. Chem., 1997, 272(37).23137-23104	
	AVVVV	Drosophila, Proc. Nati. Acad. Sci. USA, 2000, 97(19):10320-10323	
	AWWW	Thomas et al., "Evidence of a trimolecular complex involving LPS, LPS binding protein and soluble C14 as an effector of LPS response," FEBS Lett., 2002, 531:184-188	

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Other Documents (include Author, Title, Date, and Place of Publication)			
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Initial	ID	Document	
1	AXXXX	Tsutsumi-Ishii and Nagaoka, "Modulation of Human \(\text{B-Defensin-2 Transcription in Pulmonary} \) Epithelial Cells by Lipopolysaccharide-Stimulated Mononuclear Phagocytes Via Proinflammatory Cytokine Production," \(\text{J. Immunol.} \), 2003, 170:4226-4236	
7	AYYYY	Ulevitch and Tobias, "Recognition of Gram-negative bacteria and endotoxin by the innate immune system," <u>Curr. Opin. Immunol.</u> , 1999, 11:19-22	
	AZZZZ	Ulevitch, "Molecular Mechanisms of Innate Immunity," Immunol. Res., 2000, 21(2):49-54	
	AAAAA	Viriyakosol et al., "MD-2 Binds to Bacterial Lipopolysaccharide," J. Biol. Chem., 2001, 276(41):38044-38051	
	ABBBBB	Visintin et al., "Lysines 128 and 132 Enable LPS Binding to MD-2, Leading to Toll-like Receptor 4 Aggregation and Signal Transduction," J. Biol. Chem., 2003, 278(48):48313-48320	
	ACCCCC	Visintin et al., "Secreted MD-2 is a large polymeric protein that efficiently confers lipopolysaccharide sensitivity to Toll-like receptor 4," Proc. Natl. Acad. Sci. USA, 2001, 98(21):12156-12161	
	ADDDDD	Wang et al., "Increasing Epithelial Junction Permeability Enhances Gene Transfer to Airway Epithelia In Vivo," Am. J. Respir. Cell Mol. Biol., 2000, 22:129-138	
	AEEEEE	Wang et al., "Toll-Like Receptor 4 Mediates Innate Immune Responses to Haemophilus influenzae, Infection in Mouse Lung," J. Immunol., 2002, 168:810-815	
	AFFFF	Yang et al., "Cellular Events Mediated by Lipopolysaccharide-stimulated Toll-like Receptor 4," <u>J. Biol. Chem.</u> , 2000, 275(27):20861-20866	
1.	AGGGGG	Yu and Wright, "Catalytic Properties of Lipopolysaccharide (LPS) Binding Protein," J. Biol. Chem., 1996, 271:4100-4105	
	АНННН	Zasloff, "Antimicrobial peptides of multicellular organisms," Nature, 2002, 415:389-395	

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